GRIFFY LAKE

Monroe County

2004 Fish Management Report

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INTRODUCTION

Griffy Lake is a 109-acre impoundment located about 2 mi north of Bloomington, Indiana. Recreational activities at Griffy Lake are administered by the Bloomington Parks and Recreation Department. A concrete boat ramp and parking area are available. Boats may be launched from the ramp for a $3.50 daily or $36.00 annual fee. Electric motors are permitted, but gasoline motors are not. Rental boats are also available, but the total number of boats allowed on the lake is limited to 22 at any one time.

In 1982, carp, gizzard shad and other rough fish dominated the fishery. This prompted the Indiana Department of Natural Resources (IDNR) to conduct a fish renovation at Griffy Lake in hopes of creating a balanced game fish population. IDNR later stocked fingerling largemouth bass, bluegill, redear sunfish, and channel catfish, along with largemouth bass that had been salvaged prior to the eradication project. In 1992, Andrews found the fishery to be in good condition, and recommended no changes in the management program (Andrews 1993).

In 2001, a Lake and River Enhancement (LARE) study was funded for the biological control of Eurasian watermilfoil using the milfoil eating weevil. Final evaluation of this project concluded that the project was unsuccessful. Aquatic vegetation surveys conducted to follow the project did reveal the first case of Brazilian elodea *Egeria densa* in a public lake in the Midwest. Follow up investigations by Aquatic Control Inc. in 2003 confirmed the identification of this plant.

The current management program includes a 14-in minimum size limit on largemouth bass, and biennial stockings of channel catfish at a rate of 17 fish/acre. To date, the boat ramp has been temporarily closed to contain Brazilian elodea and to reduce fragmentation of this plant by electric motors.

METHODS

The present survey was conducted on May 17 and 18, 2004. Fish sampling effort consisted of 1 h of D.C. night electrofishing, 4 overnight gill net sets and 2 overnight trap net sets. All species were counted and measured to the tenth in. Fish weights were calculated from district averages. Scale samples were taken on game species for age and growth analysis.

Water chemistry parameters were measured according to standard lake survey guidelines. Aquatic vegetation sampling was conducted on July 11, 2005, as described by Pearson (2004).

RESULTS

Water chemistry was consistent with previous data from this lake. The Secchi disk reading was 11 ft. The lake was thermally stratified with the thermocline extending from 8 to 18 ft. Dissolved oxygen concentrations were adequate for game fish survival to a depth of 20 ft.

A total of 615 fish was collected. This included 10 fish species and one hybrid (hybrid sunfish). Bluegill was most abundant (58%), followed by largemouth bass (16%), and redear (13%). Other species collected included: warmouth, longear sunfish, white sucker, black crappie, channel catfish, yellow bullhead, common carp, and hybrid sunfish.

There were 357 bluegill collected ranging in length from 1.2 to 8.9 in. Bluegill ranked second by number in the 1998 survey and first in the 1992 survey (Schoenung 1998). Bluegill of harvestable size (6.0 in and larger) made up 17% of the sample. The 2004 electrofishing catch rate was 344 fish/h. The gill net catch rate was 1 fish/lift. Trap net catch rate was 5 fish/lift. The PSD value for bluegill was 25 (Anderson and Neumann 1996). Growth was below average up to age 5 and slightly above average thereafter.

Largemouth bass ranked second in abundance compared to first in the previous survey and third in the 1992 survey. There were 100 largemouth bass collected that ranged in length from 3.0 to 21.6 in. Seventeen percent were legal size (14-in) and greater. Electrofishing catch rate for largemouth bass was 91 fish/h. The gill net catch rate was 2 fish/lift, and the trap net catch rate was 1 fish/lift. The PSD for largemouth bass was 66. Growth was below average at ages 1 and 2 and slightly below average for ages 3 and 4.

A total of 78 redear sunfish was collected ranging in length from 3.0 to 9.5 in. As in 1998, redear sunfish ranked third in abundance in this survey compared to second in the 1992 survey. Redear of harvestable size (6.0 in and larger) comprised 87% of the sample. Redear electrofishing catch rate was 40 fish/h, while the trap net catch rate was

19 fish/lift. The gill net catch rate was insignificant. Growth was slightly below average for ages 2, 3 and 4.

Ten black crappie were collected that ranged in length from 6.7 to 8.2 in. All fish were age 2. Catch rates for crappie were similar to past surveys.

There were 28 warmouth collected that ranged in length from 1.5 to 8.8 in.

Channel catfish were last stocking in 2002. Seven channel catfish were collected with a length range of 11.6 to 22.1 in.

Other species collected were 15 longear sunfish, 15 white sucker, 3 yellow bullhead, a single 28-in common carp and one hybrid sunfish.

FISHERIES DISCUSSION

The limited access by power boats and the natural setting at Griffy Lake make for an overall enjoyable angling experience. Currently, Griffy Lake provides excellent fishing opportunities for bluegill, bass and redear. PSD values for bass and bluegill indicate a balanced fishery. Catches of 6-in and greater bluegill increased from 12% in 1992 to 17% in 2004. Growth has slightly decreased from 1992. Combined with redear, warmouth and the occasional black crappie, anglers should find good panfish fishing opportunities.

Largemouth bass 14-in and greater comprised 17% of the catch in this survey compared to 7% of the catch in 1992. Bass ages 2 through 6 were collected indicating consistent recruitment. The below average growth for Griffy Lake is similar to past surveys. Thick stands of vegetation on the upper end may be limiting access to prey.

Channel catfish were stocked in 2002 at a rate of 17 fish/acre. The seven fish collected represented size ranges from the past two stockings. There is no indication based on this year's catch that they are naturally reproducing. Supplemental stocking should continue provided lake access is not restricted.

VEGETATION SURVEY 2004 AND 2005

The aquatic vegetation survey was conducted on July 15, 2004. Eleven species of submersed plants were collected. Based on site frequency index, coontail was the most abundant at 92% occurrence followed by Eurasian watermilfoil (57%) and Brazilian

elodea (38%). Pondweeds collected were curlyleaf, sago, horned, American and small pondweed. Naiads collected were slender naiad and brittle naiad. Creeping water primrose was the most common shoreline emergent species. Algae species present were chara and pithophora.

A vegetation survey on July 11, 2005, was conducted to monitor the plant community and in particular Brazilian elodea. Ten species of submersed plants were collected. Coontail (73%), Eurasian watermilfoil (70%) and Brazilian elodea (49%) remain the top three in abundance.

AQUATIC VEGETATION DISCUSSION

Brazilian elodea was discovered at Griffy Lake in 2002 and has expanded to the point that a monoculture of this plant was found around the boat ramp and boat rental piers. This plant most likely came in from a dumped aquarium. It is not uncommon to find fish tank gravel at the boat ramp. The aquatic vegetation survey conducted on July 15, 2004 confirmed the establishment of Brazilian elodea, ranking this plant third in density and community dominance. Results of the survey indicated 38% of the vegetation sample sites within the littoral zone contained Brazilian elodea. Rake scoring is from 1 to 5, with 5 being the highest density score. Brazilian elodea's mean rake score where this plant was found was 1.57. Fearing the plant would be removed from the lake by private boaters, the boat ramp and the boat dock area were treated with the aquatic herbicide Reward® on August 30, 2004. Follow up inspections in September 2004 indicated good control, however leafless Brazilian elodea stems were found to have new growth at their base by October 20, 2004.

Brazilian elodea has been documented to increase annually by 100 acres per year in severe cases (AIS fact sheet. 2005). In one year at Griffy Lake, Brazilian elodea has increased its site frequency from 38% of the sample sites to 49%. Bays on the north shore of the lake have become monocultures of Brazilian elodea. Bays on the south shore of the lake have similar abundance totals to the bays on the north shore the year before. It is likely these bays will see similar increases in density within a year. Like most fragmenting plants, Brazilian elodea colonizes the shallows and spreads to deeper water.

This plant was found at depths of 18 ft in 2004 and 2005. Brazilian elodea has displaced Eurasian watermilfoil and native plants in all the north shore bays.

According to the Aquatic Vegetation Management Plan for Griffy Lake (2005), 60% of the lake has aquatic vegetation. Under normal situations a diverse native plant community covering 60% of the lake might be considered excessive from a fisheries management perspective. Currently, Griffy Lake has a diverse plant community when compared to southern Indiana impoundments. However, three of the plant species are considered invasive species (Eurasian watermilfoil, Brazilian elodea and curlyleaf pondweed). At the rate Brazilian elodea increased from 2004 to 2005, it is conceivable that if no action is taken to eradicate this plant, it could create a monoculture of over 60% of the lake in several years. The quality of the fishery would suffer along with the recreational value of the resource.

In 2004 and 2005, fragments of Brazilian elodea were documented downstream of the spillway. Currently, the lake is closed to private boats to prevent the spread of this plant. The implementation of a whole lake aquatic herbicide treatment is being studied to eliminate Brazilian elodea from Griffy Lake. This plant is already affecting the resource at Griffy Lake. Measures to contain and prevent the spread to surrounding water bodies should be aggressively implemented. Currently, Brazilian elodea can be purchased through the aquarium trade.

RECOMMENDATION

- Follow the Aquatic Vegetation Management Plan for Griffy Lake to implement a whole lake herbicide treatment to eliminate Brazilian Elodea from Griffy Lake.

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